Exercise

EXERCISE

BENEFITS OF EXERCISE

Exercise is an important part of diabetes management. An initial commitment of ten minutes per day, three days per week, can improve a patient's health and sense of well-being. Because of the risks associated with diabetes and exercise, the patient should seek physician approval before beginning an exercise program. Check each patient's Care Plan for a list of activities approved and recommended by the visiting nurse or physical therapist.

A regular exercise program can provide the following benefits:

- relief from psychological stress
- greater energy, confidence and independence;
- improved balance, coordination and mobility;
- increased flexibility, muscle mass and strength;
- improved bone density and strength;
- reduced percentage of body fat;
- improved circulation, blood pressure and heart function;
- improved blood glucose levels and increased insulin sensitivity;
- possible reduction in diabetes medications;
- possible improvement in cholesterol ratios;
- reduced risk of diabetes complications, such as heart disease.

Risks of Exercise in Persons with Diabetes

Hyperglycemia and Exercise

Hyperglycemia, or high blood sugar, can occur due to excessive food intake, illness, stress and/or insufficient insulin. The American College of Sports Medicine guidelines indicate that a blood glucose reading of greater than 300 mg/dl with or without ketones, or greater than 240 mg/dl with ketones present in urine, represents an elevated risk to participate in exercise, and a physician's approval should be obtained before proceeding with exercise.

Blood sugar levels, if already high, may increase with exercise. Exercise can stimulate the liver to break down stored glycogen to make glucose. Testing of blood glucose after exercise may reveal that the blood glucose level is even higher than the "before exercise" reading. If enough insulin is available, blood glucose levels will recover rapidly, but if insulin levels are too low, the client could start producing ketones. Although exercise-induced hyperglycemia can occur in both type 1 and type 2 diabetes, problems with ketones only happen in type 1 diabetes.

PRACTICE POINT

The Home Health Aide should check with the visiting nurse and/or therapist regarding what type and amount of exercise the client is allowed to do. He/she should also check if the patient can exercise if the blood glucose level is above 240. The visiting nurse should instruct the client and/or home health aide when the blood glucose should be checked and if the urine should be checked for ketones. If moderate to large amount of ketones are present in the urine, the client should not exercise.

Hypoglycemia and Exercise

Hypoglycemia, or low blood sugar, is a common risk associated with exercise and may occur if diabetes is treated with insulin or oral medications and/or there is insufficient food intake to maintain adequate blood glucose levels. Hypoglycemia can occur at any time, (before, during, or after exercise) and is defined as a blood glucose reading of less than 80 mg/dl or parameters set by the primary care provider.

The effect of insulin (to reduce blood sugar) is increased when a client begins to exercise, due to an increase in blood flow and body temperature. The result is a more rapid decline in blood glucose, which could cause low blood sugar (hypoglycemia).

To minimize the risk of hypoglycemia, exercise sessions should be planned with the following considerations in mind:

- Instruct the patient to time insulin injections at least one hour before exercise and to inject medication into a non-active muscle;
- Instruct patient to test blood sugar before and after exercise;
- Monitor patient for signs of low blood sugar before and after exercise;
- If the blood sugar reading is below 80 mg/dl, give the patient a snack. A serving equivalent to 15 grams of carbohydrate is recommended.

  Examples of a 15-gram carbohydrate serving:

  4 ounces of juice
  8 ounces skim milk
  3 graham cracker squares
  1 small apple
  ½ small bagel
  3 glucose tablets (5 grams each)
- If the patient develops symptoms during exercise, stop the exercise and instruct the patient to test their blood sugar;
- Record the patient's symptoms and blood sugar reading. Provide a snack if the blood sugar reading is below 80 mg/dl. Notify the nurse.

PRACTICE POINT

The Home Health Aide needs to observe the patient for signs and symptoms of low blood glucose (hypoglycemia). If the patient experiences symptoms of hypoglycemia, have the client check his/her blood glucose level. If you have been taught how to use a blood glucose meter, it may be appropriate for you to check the blood glucose if the patient is unable to do so. The visiting nurse should instruct the HHA as to what number is considered low and when to give the client a carbohydrate source. If the client cannot check the blood glucose level, the HHA should give the client a carbohydrate source only if the client can swallow. If the client is unable to swallow and appears to be having a hypoglycemic reaction, the HHA should contact emergency services (911).

Refer to the handout on hypoglycemia and hyperglycemia.

Diabetes Exercise Program Recommendations

Instruct the client to:

- Obtain physician approval prior to beginning an exercise program;
- Follow the visiting nurse or physical therapist's recommendations;
- Avoid exercise when diabetes is in poor control;
- Wait 1 to 2 hours after a meal before exercising;
- Maintain adequate fluid intake before, during and after exercise;
- Monitor blood glucose and follow guidelines to prevent hypoglycemia;
- Wear proper footwear and inspect feet daily, before, and after exercise;
- Avoid exercise when a blister, sore or open wound is present;
- Select non-weight bearing exercise (i.e., chair exercise, stationary bike) when feet are numb or sensation is impaired;
- Exercise at approximately the same time each day;
- Warm up with slow, gentle movements, gradually working into a routine (Refer to the Care Plan for a list of approved exercises.);
- Cool down by gradually decreasing the intensity of the activity;
- Stretch major muscle groups after warm up and cool down (Refer to the Care Plan for a list of approved stretches.);
- Exercise 5 - 10 minutes/session, 3 - 5 days per week. Gradually increase the number of minutes per session each week.

YOU SHOULD STOP EXERCISE if the client experiences any of the following symptoms:

- shortness of breath
- feeling dizzy, faint, or tired
- blurred vision
- headache
- fast heart rate, chest pain, back pain, jaw pain
- swollen ankles
- any other signs of discomfort

PRACTICE POINT

If the client is experiencing any unusual symptoms, exercise should be discontinued and the visiting nurse should be notified immediately.